

CLAIMS

What is claimed is:

1. An injection stretch blow molding apparatus, comprising:
 - 2 a preform molding station for injection molding preforms;
 - a blow molding station for stretch blow molding the preforms into containers; and
 - 4 a transfer station for transferring the preforms from the preform molding station to the blow molding station,
- 6 wherein the preform molding station comprises an injection molding section for simultaneously injection molding a first number N ($N \geq 2$) of the preforms at a first pitch,
- 8 wherein the blow molding station comprises:
 - 10 a circulatory carrier for intermittently circulatorily carrying the preforms along a carrying path at a second pitch larger than the first pitch, the preforms being transferred from the preform molding station through the transfer station;
 - 12 a heating section for heating the preforms being transferred along the carrying path;
 - 14 and
 - 16 a blow molding section for simultaneously blow molding n ($1 \leq n < N$) of the containers from a second number n of the preforms,
- 18 and wherein the transfer station comprises:
 - 20 a receiving mechanism for receiving the preforms from the preform molding station;
 - an inverting mechanism for inverting the preforms; and
 - a pitch changing mechanism for changing an array pitch of the preforms from the first pitch to the second pitch.

2. The injection stretch blow molding apparatus as defined in Claim 1, wherein each
preform has a neck and the pitch changing mechanism includes two neck supporting
mechanisms each of which supports the neck of the preform.

3. An injection stretch blow molding apparatus, comprising:

a preform molding station for injection molding preforms;

a blow molding station for stretch blow molding the preforms into bottles;

a transfer station for transferring the preforms from the preform molding station to
the blow molding station; and

a machine bed on which the preform molding, blow molding and transfer stations are
provided,

wherein the blow molding station comprises:

a receiving section for receiving at least one preform from the preform molding
station through the transfer station;

a circulatory carrier for intermittently circulatorily carrying the preforms along a
carrying path, the preforms being received from the receiving section;

a heating section for heating the preforms carried along the carrying path;

a blow molding section for blow molding the at least one preform carried along the
carrying path into the at least one bottle; and

a bottle ejecting section for ejecting the at least one bottle outside the apparatus,

and wherein the blow molding section is provided at an end side of the machine bed
opposite the receiving section.

4. The injection stretch blow molding apparatus as defined in Claim 3,
wherein the machine bed is substantially rectangular,
and wherein the preform molding, transfer and blow molding stations are aligned on
the machine bed.

5. An injection stretch blow molding apparatus comprising:
an injection molding station for injection molding at least one preform in an upright
state with open neck portion of the at least one preform facing upward;
a blow molding station for blow molding the at least one preform into at least one
container in an inverted state; and
a transfer station which turns the at least one preform upside-down and transfers the
at least one preform to the blow molding station in an inverted state;
and wherein the transfer station comprises:
a holding mechanism for holding the at least one preform; and
an inverting drive device for rotating the holding mechanism about a horizontal axis,
thereby the at least one preform is turned from the upright state to the inverted state.

6. The injection stretch blow molding apparatus as defined in Claim 5, wherein:
the injection molding station injection molds at least two preforms at a first pitch; and
the blow molding station comprises a circulatory carrier for intermittently circulatorily
carrying the at least two preforms along a carrying path at a second pitch larger than the first
pitch;

6 and wherein the transfer station further comprises:
a pitch changing mechanism for changing an array pitch of the at least two preforms
8 from the first pitch to the second pitch.